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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,683	10/17/2003	Paul D. Kartschoke	BUR920030114US1	2682
21918	7590	12/05/2005	EXAMINER	
DOWNS RACHLIN MARTIN PLLC			PARIHAR, SUCHIN	
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Please find below and/or attached an Office communication concerning this application or proceeding.

EX

Office Action Summary	Application No. 10/605,683	Applicant(s) KARTSCHOKE ET AL.	
	Examiner Suchin Parihar	Art Unit 2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/17/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This application 10/605,683 has been examined. Claims 1-20 are pending

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it contains parenthetical number information. The abstract is merely a narrative description of the invention. As such, no drawing references are permitted. In addition, the abstract exceeds the limit of 150 words. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 5 and 16-20 are objected to because of the following informalities: With respect to claim 16, the phrase "late mode margin of the corresponding one of said plurality of timing paths", which begins at the end of line 6 of claim 16, should read "late mode margin corresponding to one of said plurality of timing paths". Claims 17-20 follow similarly, and the correction described above should be made to these claims. In addition, claim 5 is missing a period. Appropriate correction is required.

4. Claims 2-8, 10-15 and 17-20 are objected to because of the following informalities: These dependent claims use improper antecedent basis. The preamble of each of these dependent claims should appropriately relate back to its corresponding parent claim. For example, claim 2 begins: "A method according to claim 1...". However, the method of which claim 2 is referring has already been established in claim 1. Therefore, the beginning of claim 2 should read --**The** method according to claim 1--. Claims 3-8, 10-15, and 17-20 also require corrections to their respective preambles.

5. Claims 4 and 7 are objected to because of the following informalities: These dependent claims lack sufficient antecedent basis. Specifically, the last line of claims 4 and 7 includes the phrase "the timing cycle", wherein said phrase lacks sufficient antecedent basis.

Claim Objection Under 37 CFR 1.75

6. Claims 4, 7, 11, 13 and 15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the

claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Specifically, the phrase "the overall instantaneous current draw has a profile" is not considered as further limiting their respective parent claims. Although the preamble of claim 1 includes the phrase "reducing the magnitude of an overall instantaneous current draw", this phrase does not constitute an inventive step or limitation within the body of claim 1; and it is only considered as providing the intended use of the claimed invention. In addition, the phrase "the overall instantaneous current draw has a profile" does not constitute an inventive step or limitation within the bodies of the claims: 4, 7, 11, 13 or 15. It is suggested that this phrase be deleted from claims 4, 7, 11, 13 and 15.

7. Claims 4 and 7 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Specifically, claims 4 and 7 both include the phrase "late mode margin minus a fraction of the timing cycle". However, the use of said phrase fails to further limit step (a) of claim 1, from which both claims depend.

8. Applicant is advised that should claim 11 be found allowable, claim 13 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

10. **Claims 2, 4, 5, 7, 8, 12, and 16-20 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. With respect to claim 2, the last line of the claim includes the following: "step of fixing said early mode problems". Although page 11 of applicant's specification refers to fixing early mode problems, applicant fails to particularly point out how early mode problems may be fixed. Claims 5 and 8 also contain said phrase within the bodies of their respective claims.

12. With respect to claim 12, the last line of the claim includes the following: "said late mode problems". There is insufficient antecedent basis for this limitation in the claim. The limitation "said late mode problems" is the first instance of its use within the claim language.

13. With respect to claims 4, 7 and 16-20 the phrase "each one of at least some" is rendered indefinite because the metes and bounds of this phrase are indeterminable. For example, line 3 of claim 4 uses the phrase: "each one of at least some". However, said phrase does not describe a determinable range or boundary.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15. **Claims 1-20 are provisionally rejected under 35 U.S.C. 102(e)** as being anticipated by copending Application No. 10/605,605 which has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e), if published under 35 U.S.C. 122(b) or patented. This provisional rejection under 35 U.S.C. 102(e) is based upon a presumption of future publication or patenting of the copending application 10/605,605.

This provisional rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131. This rejection may not be overcome by the filing of a terminal disclaimer. See *In re Bartfeld*, 925 F.2d 1450, 17 USPQ2d 1885 (Fed. Cir. 1991).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

17. **Claims 1-3, 9, 10, 16 and 17 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Kojima et al. (US PG Pub. 20030014724).

18. With respect to claims 1-3, 9, 10, 16 and 17, Kojima teaches all elements of these claims as explained in their respective paragraphs below. Kojima fails to specifically teach the use of the following terms: "early mode" and "late mode".

However, Kojima does teach the applicant's definitions of "early mode" and "late mode" as is described in the three paragraphs that follow:

Although Kojima does not explicitly use the term "late mode", Kojima does use the term "timing slack", which the applicant refers to as "late mode margin" (Applicant's Specification, pg 9, paragraph [0020], line 2). Both the applicant and Kojima use the term "timing slack" to refer to a margin of time for further delaying timing signals. Applicant refers to "timing slack" on page 10 of the specification, in paragraph [0021], lines 1-3 (i.e. margin for delaying timing signals). Kojima refers to timing slack on page 4 in paragraph [0055] (i.e. "degree of allowance" for further delaying timing signals).

Although Kojima does not explicitly use the term "early mode", Kojima discusses a constraint time that closely fits the applicant's definition of "early mode" margin. Kojima discusses this constraint time on page 2 in paragraph [0025] (i.e. a maximum delay time that exceeds some maximum delay constraint time). Applicant discusses "early mode margin" and its definition on page 10 of the specification in paragraph [0021] (i.e. margin between time when element

must be triggered [maximum-delay time] and some time later when element is actually triggered [exceeding constraint]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kojima by substituting such terms as “early mode” and “late mode” for the descriptions of the delay-time problems discussed in Kojima, because such modification is consonant with Applicant’s disclosed specification definitions.

19. With respect to claim 1, Kojima teaches a method for reducing the magnitude of an overall instantaneous current draw (pg 7, paragraph [0120], i.e. reduce peak current) during a timing cycle in a synchronous integrated circuit having a plurality of timing paths (pg 7, paragraph [0120], i.e. a “plurality of flip-flop circuits” which may constitute a plurality of timing paths) comprising the steps of: determining a timing delay for each one of the plurality of timing paths (pg 2, paragraph [0022], i.e. clock delay assignment process is performed); inserting a delay element (pg 10, claim 2, i.e. inserting a device having a delay) into each of the plurality of timing paths having said corresponding delay element configured to induce said corresponding delay into that one of the plurality of timing paths.

20. With respect to claim 2, Kojima teaches all the elements of claim 1, from which the claim depends, as described above. Kojima teaches a method wherein at least some of the plurality of timing paths each have early mode problems (pg 2, paragraph [0025], i.e. maximum delay time constraint violation – early mode), the method further

comprising the step of fixing said early mode problems (pg 4, paragraph [0058], i.e. if constraint exists, adjust clock skew).

21. With respect to claim 3, Kojima teaches all the elements of claim 1, from which the claim depends, as described above. Kojima teaches a method wherein each one of the plurality of timing paths has a corresponding late mode margin (pg 4, par 55, i.e. time slack of each flip-flop circuit is obtained) and includes setting each corresponding delay to said corresponding late mode margin (pg 4, par 55, i.e. timing slack is obtained as an optimal value, D_{opti}).

22. With respect to claim 9, Kojima teaches a method for reducing the magnitude of an overall instantaneous current draw (pg 7, par 120, i.e. reduce peak current) during a timing cycle in a synchronous integrated circuit having a plurality of timing paths (pg 7, paragraph [0120], i.e. a plurality of flip-flop circuits) each having a late mode margin (Figure 6, S402, i.e. obtaining an optimal value of timing slack for each register F/F_i), comprising the steps of: determining if the late mode margin of each one of the plurality of timing paths is greater than zero (pg 2, paragraph [0023], i.e. obtain timing slack); and for each one of the plurality of timing paths, delay being a function of the corresponding late mode margin (pg 4, paragraph [0055], i.e. timing slack optimal value).

23. With respect to claim 10, Kojima teaches all the elements of claim 9, from which the claim depends, as described above. Kojima teaches a method wherein each delay is equal to the corresponding late mode margin (pg 4, paragraph [0057], i.e. all flip-flop circuits are substantially at the center of the timing slack within a permissible range).

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24. With respect to claim 16, Kojima teaches an integrated circuit (pg 1, paragraph [0005]) comprising: a plurality of timing paths (pg 1, paragraph [0005], i.e. clock signals) each having a late mode margin (pg 2, paragraph [0023], i.e. obtaining a timing slack); a delay element (pg 10, claim 2, i.e. delay is added to clock signals) located in each one of at least some of plurality of timing paths, each of said delay elements having a delay that is a function of said late mode margin (pg 4, par [0057], i.e. all flip-flops are within the range of the timing slack –late mode margin) of the corresponding one of said plurality of timing paths.

25. With respect to claim 17, Kojima teaches all the elements of claim 16, from which the claim depends, as described above. Kojima teaches an integrated circuit wherein each said delay is substantially equal to late mode margin of the corresponding one of said plurality of timing paths (pg 4, paragraph [0057], i.e. all flip-flop circuits are substantially at the center of the timing slack within a permissible range).

26. **Claims 11 and 13 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Kojima et al. (US PG Pub. 20030014724) in view of Kovacs et al. (US PG Pub. 20050050496).

27. With respect to claims 11 and 13, Kojima teaches all the elements of claim 9, from which the claims depend, as described above. Kojima does not teach removing at least one timing path from portion of the plurality of timing paths. Kovacs teaches removal of a wire included in a timing path in response to delay information (pg 1, paragraph [0008], lines 6-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Kovacs into the method of Kojima because

Kovacs suggests removing the wires of a timing path if that timing path exceeds a threshold delay (Kovacs, pg 1, paragraph [0008], lines 6-10).

Double Patenting

28. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

29. Claims 1-20 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1-20 of copending Application No. 10/605,605. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

30. Claims 1-20 are directed to the same invention as that of claim 1-20 of commonly assigned 10/605,605. The issue of priority under 35 U.S.C. 102(g) and possibly 35 U.S.C. 102(f) of this single invention must be resolved.

Since the U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302), the assignee is required to state which entity is the prior inventor of the conflicting subject matter. A terminal disclaimer has no effect in this situation since the basis for refusing more than one patent is priority of invention under 35 U.S.C. 102(f) or (g) and not an extension of monopoly.

Failure to comply with this requirement will result in a holding of abandonment of this application.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hathaway (5,944,834) teaches a method of analyzing timing differences in a circuit that involves identifying delay paths and determining early and late mode arrival times. Granato et al. (5,507,029) teaches a method for minimizing the time skew of electrical signals that involves differences in early and late mode time slack. Hathaway et al. (5,636,372) teaches a method of analyzing timing differences between arrival times of distinct signals that involves time slack determination. Abato et al. (5,508,937) teaches a method of incremental timing analysis that involves determining delay paths and their corresponding delay times.

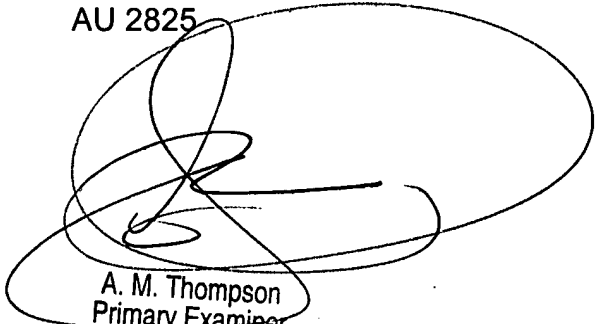
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suchin Parihar whose telephone number is 571-272-6210. The examiner can normally be reached on Mon-Fri, 8:30am-5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached at 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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